EXHIBIT D

Review of CT scans of subject Sig Sauer P-320's and further examination of Exemplars

1) On March 17/18, 2021, a CT scan was performed on four subject Sig Sauer P-320's. This examination was an attempt to view possible internal design and/or manufacturing defects that could not be viewed externally.

2) All four subject P-320's and three exemplars were also photographed afterwards.

3) After examining the CT scans on all four subject P-320's, I found the following design and manufacturing defects which appeared in all four P-320's,(Kneski,Frankenberry,Guay and Mayes)

4) (DESIGN DEFECT) A rear view of the striker foot channel in the slide showed an excessive gap vertically along the striker foot which allows the striker to have excess lateral movement within the channel from left to right causing the striker foot to not only make an improper connection to the sear, but also can cause the safety lock tab that makes contact with the parallel horizontal plain of the striker to be out of alignment.

5) This misalignment could cause minimal contact between the safety lock tab and the rear vertical portion of the striker,which in turn can cause the safety lock tab to ride over the striker causing an uncommanded discharge as it moves upwards.

6) (DESIGN DEFECT) Also, the CT scan showed that the safety lock has a poor fit between itself and the striker as the safety lock tab showed a top gap between itself and the striker body. This gap reduced contact between the two parts.

7) The safety lock also showed an excessive gap along its vertical plain which allowed the safety lock to move laterally also creating further misalignment between the striker and safety lock.

8) (MANUFACTURING DEFECT) Enlargement photographs of the three exemplars safety lock tabs show significant unevenness of the contact surface of these tabs. This is also another contributing factor in an uncommanded discharge as the safety lock tab could ride over the vertical wall of the striker .

9) (DESIGN DEFECT) The CT scan also showed lack of contact between the sear and striker foot as the overall height of the foot was not fully in contact with the overall height of the sear.

10) (DESIGN DEFECT) On both non upgraded and upgraded models, the sear also did not make full contact with the striker foot as the body of the sear below its pivot point would “bottom out” prematurely not allowing the sear to rise fully to engage the entire striker foot interface.

11) (DESIGN DEFECT) Another issue that the CT scan showed was that both sear spring coils drag along the sear housing which could prevent the sear from rising to make full contact with the striker foot as both springs bowed outward during their travel. These springs should have no contact except with the bottom of the sear as the sear travels up or down.

12) (MANUFACTURING DEFECT) Also evident in photographs previously taken of exemplar #2, as well as the Frankenberry subject P-320, you can clearly see drag marks on the inner back edge of the sear and corresponding scrape marks along the center raised portion of the sear housing. The exemplar sear (photographed removed from the FCU), shows excess “rollover” on the rear portion which makes

contact with the center spine of the sear housing during its travel up and down. All sears showed signs of different sizes within their respective FCU's. This is due to the MIM process and varying degrees of final shrinkage during the production process by Sig Sauers sub contractors.

13) (DESIGN/MANUFACTURING DEFECTS) The combination of the sear springs dragging along the sear housing channel,the inner rear portion of the sear dragging along the center spine of the sear housing and the "bottoming out" below the sear pivot point can contribute to the lack of upward pressure needed to maintain proper contact against the striker foot overlap which would prevent the striker from slipping off of the sear and resulting in an uncommanded discharge.

14) (DESIGN DEFECT) I also noticed in the CT scans of all four subject P-320's that the vertical alignment of the striker foot was farther to the left rather than being designed to be positioned directly over the center of the sear and springs. This misalignment can contribute to the lack of even spring pressure and the proper rise of the sear. Uneven spring pressure can result in the sear being able to also move slightly diagonally within its vertical channel.

15) (DESIGN DEFECT) The Guay, Kneski and Mayes subject P-320's also showed striker and sear overlap as previously discovered in the other examined P-320's. This appears to be a consistent problem throughout all P-320 pistols.

16) The Kneski and Mayes subject P-320's were also missing their safety lever return springs which is needed to fully retract the safety lever after the trigger is released.This spring can also be considered a safety part as well, and its discontinued use by Sig Sauer also

contributes to uncommanded discharges as the safety lever does not work as fully designed.

17) MANUFACTURING DEFECT) Further examination of these P-320's showed that the safety levers remained in the "out" position in direct contradiction to Sig Sauers statement on page 69 of their "Sig P320 TECHNICAL ARMORER'S MANUAL", that states," **This spring has been eliminated from current production. The safety lever uses gravity to rest in the lowered position.**" This statement refers to the pistol being in the horizontal position (LOWERED). When the P-320 is holstered, it is in a vertical, slightly forward position. Then the safety lever would come "OUT" due to gravity, not down or lowered.

18) During the CT scans, all four subject P-320 pistols were mounted in the CT scanner in a "muzzle down" orientation which approximates a holstered condition.

19) (MANUFACTURING DEFECT) The Frankenberry subject P-320 showed excessive drag marks on the MIM produced safety lock right side which was not in other P-320 models as the MIM safety lock was eventually replaced in newer models using a stamped part instead of a MIM part. Even the newer stamped version of the safety lock tab showed signs of deformation along their outer edges which again causes minimal contact between the tab and striker.

20) (MANUFACTURING DEFECT) A closer examination of all three exemplar P-320's striker bodies, (non upgraded and upgraded) it was noticed that along the horizontal plain where the safety lock tab rides, approximately 1.5mm forward of the vertical wall of the striker that that is supposed to prevent uncommanded discharges by hitting the safety lock tab during forward travel without a trigger press, has a slight raised surface, which can act as a "launch point" for the safety

lock tab causing it to move upward thereby allowing the striker to make full contact with the chambered round causing an uncommanded discharge.

21) After a careful review of the discovered design and manufacturing defects within all of the Sig Sauer model P-320 pistols that I have personally examined, I can, to a reasonable degree of technical certainty state that the four subject pistols discharged without manipulation of the triggering mechanism.

22) The evidence further supports, to a reasonable degree of technical certainty that the Frankenberry, Kneski, Mayes, and Guay subject Sig Sauer P-320 pistols were carried in a position comparable to that expected with a normal mode of common carry in or around the waist at the moment of the uncommanded discharge.

23) Also observed in the three exemplar Sig Sauer P-320 pistols were the same design and manufacturing defects as were discovered in the subject P-320's which, within a reasonable degree of technical certainty, will, at some point in time, cause an uncommanded discharge as it is apparent that all Sig Sauer P-320 pistols share the same defective parts.

If called upon to testify at trial or hearing, my testimony will reference various exhibits, including the subject and exemplar artifacts,photographs,videos,and other documents produced during this investigation. In addition to this report, an animation/simulation was prepared of the P-320 that accurately depicts all internal mechanisms of its fire control unit (FCU). These images were obtained by computer tomography and/or high resolution photographs of the parts in question in March 2021 at North Star Imaging in Marlborough,Massachusetts. I was present at this facility when the images were taken and supervised the inspection and imaging of the weapon in question along with

representatives of Sig Sauer,Inc. I also supervised the creation of the animation/simulation, and sample screenshots are included for reference. A more detailed listing of exhibits will be produced in accord with orders of the Court.

REBUTTAL TO SIG SAUER'S EXPERT WITNESS STATEMENTS

A review of Sig Sauers Expert's report from Mr. Derik Watkins, listed under "PROFESSIONAL EXPERIENCE" page 2, He states that he was employed by Remington Arms Company as a Lead Engineer for the M710's initial product and development, from 2009- 2014.

The Remington Model 710 firearm was the center of controversy in a prolonged class action lawsuit against Remington Arms as the rifle was firing "uncommanded without a trigger pull due to a design defect within the trigger mechanism. Over 75 people suffered gunshot wounds from "uncommanded discharges" and at least one resulting in the death of a minor child.

Mr. Watkins states in his report that I "failed to disclose a single instance of the subject pistol discharging absent a trigger pull". The subject pistol is an evidentiary item and was subject to handling restrictions while it is maintained in my possession.

Mr. Watkins states that my analysis of the subject pistol is flawed and "oversimplified" as I stated that there was an improper use of "MIM" parts. This evaluation was substantiated by Sig Sauers own Sub Contractors statements in an email between myself and OptiMIM's Sales Manager Tracy Hart dated August 27,2020 where she specifically states,

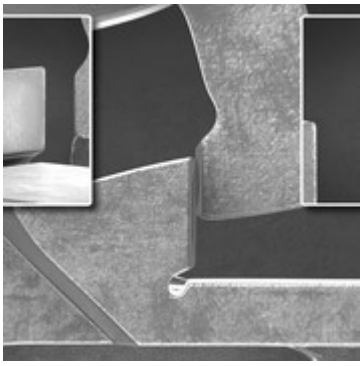
"OptiMIM follows the specific parts specifications from our customer who designs these components. It greatly depends on the customer and subsequent processing the component may see after we ship. Generally

speaking, we tumble the parts to remove sharp edges. Specifications for flatness of surfaces vary by part and application. **Rolled edges are normally not acceptable, unless part will see subsequent machining of the surface to remove this condition".**

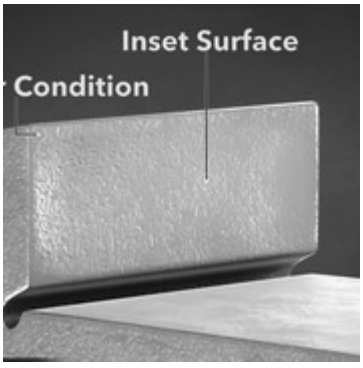
Both Sig Sauers Subcontractor and my assessment of improper use are in concurrence.

> Page 5 Mr. Watkins states that "Mr Villani concedes in his report that leaving the trigger unprotected can "easily allow a foreign object such as a shirt tail,draw string or other unknown object to make contact with the trigger causing it to be unintentionally pressed to the rear when the wearer moves".
>
> This statement was in relationship to the defective design of the Sig Sauer P-320 holster that was issued with some pistols during point of sale as was referenced in paragraph 21 of my original report.
>
> Page 9, Mr. Watkins states that while the subject pistol was being CT scanned, "at no point during the exam did Mr. Villani demonstrate that any of his 13+ claimed defects could manifest in the form of an uncommanded discharge, or cause the pistol to malfunction".
>
> The arrival of all parties to the CT scanning facility was for the subject and other Sig Sauer P-320 pistols to be CT scanned by NSI and also to examined by Sig Sauers Experts since they had not had the opportunity to previously examine them. There were no discussions either way from either party in regards to the pistols functionality.
>
> Also, during the initial exam of the subject pistol or other P-320's at NSI, it was mutually agreed upon between myself and Mr. Watkins to "take charge" of the function testing of each pistol being examined. It was not necessary for both of us to do so.

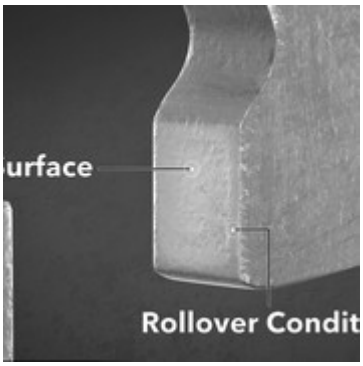
Page 9, Mr. Watkins states that I “had “unrestricted access” to the subject pistol prior to the exam at NSI, but he had reportedly not disassembled the pistol” . Mr. Watkins is mistaken to this fact as I clearly stated in my initial report (Paragraph 42) that I was restricted to a simple field strip of the pistol as it was an evidentiary item which required council for the plaintiff (Frankenberry) to notify Sig Sauer prior to me taking apart the pistol to a “field strip” condition only for my visual examination as to not affect change in the subject pistols condition.



Striker foot to sear engagement showing “rollover” condition causing minimal contact between both parts.



Sear face showing rollover around edges



Striker foot surface showing rollover condition

Rear view of striker foot showing excess lateral movement which causes inconsistent interaction of safety lock tab and sear face.

Rear view of striker foot off center of sear face

This report is for the examination of three “exemplar” Sig Sauer model P-320 handguns and two subject P-320 in evidence to determine possible manufacturer defects in design.

#1 58A099357 9mm Exeter,NH November 8,2016 SUBCOMPACT
#2 58C101498 9mm Newington NH November 18,2017 COMPACT
#3 58C183837 .40 caliber Newington, NH December 24,2017 FULL SIZE
#4 58B017511 9mm Exeter, NH Date Unknown COMPACT MEDIUM
(#4 is the subject gun in evidence)
#5 58A002763 Schneider P-320 in evidence Photographs only

1) The first exemplar is a 9mm sub compact version bearing serial number 58A099357 which will be referenced as #1 throughout this report. The second exemplar is a 9 mm mid sized version bearing serial number 58C101498, which will be referenced as #2 throughout this report. The third exemplar is a .40 caliber full sized version bearing serial number 58C183837, which will be referenced as #3 throughout this report. The fourth “subject” pistol,serial number 58B017511 will be referenced in this report as #4.

INSPECTION of #1 9mm Serial number 58A099357 SUB COMPACT

2) I began my examination of #1 which had an overall appearance of 75-80% “good” condition. I noticed that there were wear marks on the slide catches and muzzle top end of the barrel and under the breach area of the slide which indicates that it has been fairly used.There were also holster wear marks on the front right and left side of the trigger guard and recoil spring cover of the grip module.The twelve round magazine in #1 had several wear marks along its body on all four sides. The night sights were dim.The Sig Sauer manufactured box provided, showed a manufacturing date of November 8,2016.#1 was an original non upgraded version. The amount of rounds previously discharged could not be determined.

3) I then began to field strip #1 to examine the internal components. The interior was clean and free of any debris . After removing the fire control unit (FCU), as it will be called throughout this report, from the grip module, I noticed clean oil on parts of the FCU, and white grease under the slide catch spring.

4) **(MANUFACTURING DEFECT)** I also removed the striker assembly from the slide. I noticed that the striker assembly was also clean. However, I noticed that the safety return spring that was under the safety lock was scraping a small groove into the striker housing as it moved up and down due to the end of the spring having a sharp edge.

Eventually this can cause the spring to stick allowing the safety lock to not engage properly.

5) **(MANUFACTURING DEFECT)** Along the length of the striker I noticed a mold seam which indicates that the part was cast metal and not finely finished by machining or hand fitting to tighter tolerances. The striker safety lock appeared to be a stamped steel part.
After disassembling the striker assembly, I noticed that the striker, and striker housing were cast parts (MIM) (Mold Injected Metal) and not machined parts that were finely finished to make better contact.

6) **(DESIGN DEFECT)** I noticed that the striker safety notch that the safety lock engages to prevent the striker from making contact with the primer was molded with a stress"relief" cut in its inner corner which prevented the striker safety lock from making full contact with the striker when engaged. Therefore when the safety lock is making contact with the striker notch, it is only touching the outer edge of the striker which causes less contact pressure between the two parts.

7) The safety lock foot measured an overall thickness of .84 of a mm and the striker notch depth was .81of a mm.

8) **(DESIGN DEFECT)** I then began to inspect the FCU internal parts for wear marks. One wear mark I noticed was on top of the sear which was made by the striker foot. The mark appeared to be off center of the sear which can cause irregular pressure on one sear spring located under the rear portion of the sear more than the other. Another issue discovered with the striker was that it had a side to side movement of .85 of a mm which can result in an improper contact between the striker foot and the sear when recocking occurs. When the slide comes fully rearward and the striker is re engaging the sear, depending upon the force of the slide in motion, the striker foot can land on the sear either straight up and down ,left or right of the sear overlap surface , which is the contact area that engages the striker foot.

9) **(DESIGN DEFECT)** With an extra modified slide cap(shorter) installed, I was able to view the safety lever pushing the safety lock up,but the lock also showed excessive angular (side to side) movement as it went up to disengage the striker. The safety lock should only move vertically. This was due to the safety lever not contacting the safety lock on its center axis but rather to the right side of the safety lever. I also noticed a slight "air gap" between the top of the safety lever and the bottom of the safety lock when at rest. This gap appeared to be approximately half a millimeter. Taking the "air

gap" of .50 of a mm into consideration and the thickness of the safety lock (.84 mm), all you need is a maximum movement of 1.38 mm to disengage the safety lock! Also with the slide to grip module downward movement of .39 of a mm, the amount of movement to totally disengage the safety lock is less than 1mm!

10) I was also able to fully view the striker foot and sear engagement as I was able to see that the striker foot was connected to the sear overlap on an angle rather than straight up and down.
I was also able to notice that the striker moved with the slide up and down while the sear stayed in place and did not move.

11) (**MANUFACTURING DEFECT)** Another thin wear mark/line was on the top edge of the sear which appeared to be less than 1mm in height, but the height of the sear overlap measured was a total of 2.18mm. This appeared to be the only contact between the sear overlap and the striker foot overlap.A wear mark such as this shows that the leading edge is not sharp due to "rollover" which would be critical in allowing the striker foot overlap (1.44mm) to maintain full contact with the sear overlap. This lack of contact is due to "rollover" that occurs when a cast or "MIM" (Mold Injected Metal) part is used that has not been machined completely flat by either the subcontractor who manufactured the MIM part for Sig Sauer , or Sig Sauer themselves failed to do so once they received the part from the subcontractor. **This was substantiated by my direct correspondence with one of Sig Sauers own subcontractors (OptiMIM) who stated,:"Optimim follows the specific part specifications from our customer who designs these components. It greatly depends on the customer and subsequent processing the component may see after we ship. Generally speaking, we tumble the parts to remove sharp edges. Specifications for flatness of surfaces vary by part and application". The subcontractor continued to state: "Rolled edges are not normally acceptable, unless part will see subsequent machining of the surface to remove this condition." (See email attached to report)** I then noticed a thin wear mark on the overlap surface of the striker foot which also appears to not be sharp. Out of 1.44mm of striker foot overlap, less than 1 mm comes into actual contact with the sear overlap of 2.18mm due to "rollover".

12) **(DESIGN DEFECT)** After removing the trigger from the FCU, I noticed dried ,dirty ,and solidified white grease behind the trigger on the FCU housing.This can be of concern as dried grease can cause the trigger to "stick" by not allowing the trigger to come fully forward after firing the sidearm. If the trigger does not come fully forward, the safety lever cannot return to its fully lower (horizontal) or inward (vertical) position. This inturn causes the safety lock to stay disengaged from the striker. The safety lock has a

gap of approximately half of a mm between itself and the top of the safety lever before the safety lever engages it. The thickness of the safety lock itself is only .84 of a mm. Therefore a nominal movement of the trigger ,1.38mm, allows the safety to be disengaged.

13) **(DESIGN DEFECT)** Any slight movement or sticking of the trigger causes the safety lever to disengage the safety lock as the safety lever moves **immediately** when the trigger moves. There is no time delay in the movement of the safety lever when the trigger is pressed to the rear. There is no mechanical delay or "camming" effect between the trigger/trigger bar and the safety levers upward/outward movement.

14) **(DESIGN DEFECT)** Another issue observed was that the rear portion of the coils to the sear springs make contact with the sear housing as you can see wear marks from the springs on the inside of the plastic sear housing.

15) **(MANUFACTURING DEFECT)** Another defect noted was with the slide cap height. The overall height of the slide cap measured 18.28 mm. When the slide was compressed downward towards the grip module, the slide cap made contact with the top of the plastic sear housing. When the slide was not compressed, there was a gap between the cap and sear housing of approximately .38 of a mm. If debris is caught in that gap, then when the slide is compressed downward, the sear, which is located directly behind the cap, can be forced downward causing the striker to be released and fire a round. On all three slide caps measured, there was a height variance noted (#1/18.28mm, #2/18.32mm,#3/18.38mm). This could be a result of different subcontractors using different formulas in their MIM process which resulted in a final size difference after the MIM process is completed or an inconsistent formula by one or more subcontractors.

16) **(DESIGN DEFECT)** I observed that the trigger bar spring makes contact with the back spine of the magazine when the trigger is pressed. This is noted by the wear mark at the top right corner of the magazine along with visual observation while looking up the empty magazine well, you can clearly see that the trigger bar spring protrudes into the magazine well without a magazine inserted.

17) The FCU housing was engraved,"NEWINGTON N.H." Whether the complete FCU or just the housing was manufactured in Newington NH is unknown. The frame was marked,"EXETER NH"

18) **PARTS MEASUREMENT LIST #1**

The total sear overlap was measured at 2.18mm.
The striker overlap measured 1.44mm
The slide cap height measured 18.28mm
Rail thickness was 1.96mm
Slide rail gap was 2.35mm
Slide downward movement measured .39 of a mm
Lateral movement of the striker foot measured .85 of a mm
Striker safety plate foot thickness .84 of a mm
Striker safety notch .81 of a mm
Safety lock thickness .84 of a mm

19) **INSPECTION OF #2 9mm Serial number 58C101498 SUB COMPACT**

20) The overall condition appeared to be 95-98% condition resale value. This exemplar came with a Sig Sauer manufactured paddle outside the waistband synthetic holster.

21) **(DESIGN DEFECT) Side observation:** As I inspected the Sig Sauer manufactured holster with #2 fully inserted, I noticed a severe design flaw immediately with the holster. Even though the provided holster was clearly marked on the backside, (”WARNING,READ INSTRUCTIONS,PAT PENDING P250 FULL SIZE,P250 COMPACT”) and since both the Sig P-250 and Sig P-320 share the same body profile and both firearms fit into the holster, the holster was designed to allow the trigger to be exposed on the “body side” which could easily allow a foreign object such as a shirt tail, draw string, or other unknown object to make contact with the trigger causing it to be unintentionally pressed to the rear when the wearer moves or attempts to remove the holster from the users beltline which could result in an unintended discharge. Another design flaw I noticed was that the magazine release button was exposed, which could allow an unintended ejection of the magazine.

22) After removing the slide from the grip module, I saw that the rear of the striker housing area had been freshly milled and unfinished. This is indicative of a 320 that was returned to Sig Sauer after the point of sale for the “voluntary upgrade Program”.

23) The interior of #2 appeared to be clean and free of debris. I began to disassemble the firearm completely and began measuring critical parts of the striker and FCU as I did with #1. After measuring these components, the size differences were compared to #1 and annotated in the comparison chart of this report.

24) **(MANUFACTURING DEFECT)** After disassembling the striker assembly, I noticed that the striker, and striker housing were cast parts (MIM) (Mold Injected Metal) and not machined parts. The use of cast parts can cause dimensional differences in contact surfaces.

25) **(MANUFACTURING DEFECT)** I also removed the striker assembly from the slide. I noticed that the striker assembly was also clean. However, I noticed that the safety return spring that was under the safety lock was scraping a small groove into the striker housing as it moved up and down due to the end of the spring having a sharp edge. Eventually this can cause the spring to stick allowing the safety lock to not engage properly. This was also apparent in #1.

26) **(DESIGN DEFECT)** The major visual difference between #1 and #2 noticed was the addition of a “disconnector arm” to the FCU of #2 and a new sear which now had a secondary sear overlap 6mm forward of the primary sear overlap area.Also noted was that the primary sear overlap contact area was reduced in size from #1 from 2.18mm down to 1.13mm! The striker overlap contact area measured 1.30mm which has a larger overlap area than that of the sear overlap area itself. This allows a .17 of a mm of the striker foot overlap that never makes contact with the sear overlap!

27) **(DESIGN DEFECT)** With an extra modified slide cap(shorter) installed, I was able to view the safety lever pushing the safety lock up,but the lock also showed excessive angular (side to side) movement as it went up to disengage the striker as in #1. The safety lock should only move vertically.

28) **(DESIGN DEFECT)** The addition of a secondary sear overlap area to act as a “failsafe” in the event the striker foot does disengage unintentionally from the primary sear overlap is a design flaw within itself. The Sig Sauer P-320 was designed to fire from a fully “energized" striker position with a fully compressed striker spring. If an unintended release of the striker foot from the primary sear overlap does occur ,and the striker begins a forward movement, and the secondary sear overlap does in fact catch the striker foot and prevents an unintended discharge as Sig Sauer designed the upgraded sear to be, the P-320 is now in a partially “energized” position. When the user attempts to fire the sidearm, a light primer hit may occur and the round may not discharge! The fact that the striker spring now has less compressed energy to fully strike the primer is in question. A lighter primer strike may not ignite the primer depending upon the type of primer used in the ammunition carried as some primer bases are thicker than others which need a fully energized striker to ignite it.

29) The FCU housing was engraved,"NEWINGTON N.H." Whether the complete FCU or just the housing was manufactured in Newington NH is unknown.

30) **PARTS MEASUREMENT LIST #2**

Sear overlap was measured at 1.13 mm
Striker overlap 1.30 mm
Slide cap height 18.32 mm
Rail thickness 2.13 mm
Slide rail gap 2.37 mm
Slide downward movement .24 of a mm
Lateral movement of striker foot .53 of a mm
Striker safety plate foot thickness .83 of a mm
Striker safety notch .85 of a mm
Lack of overlap (sear/striker foot) .17 of a mm.
Safety lock thickness .83 of a mm

31) **INSPECTION of #3 .40 caliber Serial number 58C183837 FULL SIZE**

32) The overall appearance is in "new condition" 100% resale value as it had only 100 test rounds discharged since purchased from the owner.

33) This model had the upgrade completed by Sig Sauer prior to the point of sale.

34) After removing the FCU, I observed it to be clean and free of debris. The upper slide assembly appeared to also be in new condition.

35) **(DESIGN DEFECT)** I noticed that the safety lever also moved immediately upon pressing the trigger rearward.
There was also a visual gap between the top of the safety lever and the bottom of the safety lock of approximately half of a mm and a movement of approximately 1.33 mm of the trigger can cause the safety lock to be disengaged from the striker as the thickness of the safety lock was .83 of a mm.

36) **(DESIGN DEFECT)** With an extra modified slide cap(shorter) installed, I was able to view the safety lever pushing the safety lock up,but the lock also showed excessive angular (side to side) movement as it went up to disengage the striker. Both #1 and 2 showed this movement. The safety lock should only move vertically.

37) **(MANUFACTURING DEFECT)** After disassembling the striker assembly, I noticed that the striker, and striker housing were cast parts (MIM) (Mold Injected Metal) and not machined parts. Along the length of the striker I noticed a mold seam which indicates that the part was cast metal and not finely finished by machining to tighter tolerances. The striker safety lock appeared to be a stamped steel part as with #1 and #2.

38) **(DESIGN DEFECT)** The major visual difference between #1 and #3, I noticed was the addition of a “disconnector arm” to the FCU like in#2 ,and a new sear which now had a secondary sear overlap 6mm forward of the primary sear overlap area.The addition of a secondary sear overlap area to act as a “failsafe” in the event the striker foot does disengage unintentionally from the primary sear overlap is a design flaw within itself. The Sig Sauer P-320 was designed to fire from a fully “energized" striker position with a fully compressed striker spring. If an unintended release of the striker foot from the primary sear overlap does occur ,and the striker begins a forward movement, and the secondary sear overlap does in fact catch the striker foot and prevents an unintended discharge as Sig Sauer designed, the P-320 is now in a partially “energized” position. When the user attempts to fire the sidearm, a light primer hit may occur and the round may not discharge! The fact that the striker spring now has less compressed energy to fully strike the primer is in question. A lighter primer strike may not ignite the primer depending upon the type of primer used in the ammunition carried.

39) **(DESIGN DEFECT)** I observed that the trigger bar spring makes contact with the back top right side of the spine of the magazine when the trigger is pressed. This is noted by the wear mark at the top right corner of the magazine along with visual observation while looking up the empty magazine well, you can clearly see that the trigger bar spring protrudes into the magazine well without a magazine inserted.

40)**PARTS MEASUREMENT LIST #3**

Sear overlap was measured at 1.06 mm
Striker overlap 1.341mm
Slide cap height 18.38 mm
Rail thickness 2.25 mm
Slide rail gap 2.10 mm
Slide downward movement .15 of a mm
Lateral movement of striker foot .61 of a mm
Striker safety plate foot thickness .83 of a mm
Striker safety notch .86 of a mm
Lack of overlap (sear/striker foot) .35 of a mm.

Safety lock thickness .83 of a mm

41) **Inspection of #4 P-320 entered into evidence Serial #58B017511**

42) This inspection was of a limited nature restricted to a “field strip” only due to this sidearm being in evidence as it was the suspect gun used in an unintended discharge.This P-320 was a non-upgraded model.

43) The overall appearance seemed to be 85-90% resale value as there were slight wear marks normal with its age. The amount of rounds could not be determined at this time. There was slight gunpowder residue along the magazine release housing and take down safety lever. There was also gun powder residue on the feed ramp and breech face. There were wear marks on the underside of the slide hood. The magazine provided ,showed normal wear marks on its edges with the exception of the right top backstrap which had a wear mark from the trigger bar return spring pressing against it when the trigger is pressed.This condition was apparent in the other 320’s as well.

44) After removing the magazine and slide from the grip module then removing the recoil spring and barrel from the slide, I began to photograph the FCU for defects.

45) **(MANUFACTURING DEFECT)** I was able to observe that the fire control parts were also made of “MIM” as like the previously examined pistols.The sear face showed an obvious “rollover” condition as did the striker foot. However, It appeared that the left corner of the striker foot showed excessive rollover, more so than the other three corners of the striker foot. The left upper corner of the sear face also showed a corresponding wear mark **into** its rollover which indicates that this was the ONLY portion of the sear that interfaced with the striker foot when fully “energized”. Also noted was that the rear portion of the sear (“V”) notch showed black scrape marks from the center raised portion of the sear housing and corresponding marks on the housing. This could cause the sear to be stuck lower than needed allowing the striker foot to “walk off” of the sear causing a discharge.The sear travel should be unimpeded.

46) I also noticed that lint had accumulated in front of the sear overlap and around the slide cap which is indicative of being carried and clothing lint becoming deposited through the slide cap gap and resting on the sear while being carried in a vertical position. This could also be a factor in allowing the striker to “ride off” of the sear overlap due to continuous slide motion.(up/down/left/right)

47) I was not able to get an accurate measurement of the following parts due to its evidentiary status: sear overlap, striker overlap,striker safety lock foot thickness, striker safety notch, and lack of overlap between the sear and striker foot interface.

48) **(DESIGN DEFECT)** Not only did the striker foot have side to side movement of .80 of a mm, but the entire striker housing moved side to side with the striker! The striker housing channel appeared to be too large which allowed the striker and housing to move side to side which could cause the striker foot to land differently every time the slide recoiled rearward.

49) The FCU housing was stamped “EXETER NH”.

50)**PARTS MEASUREMENT LIST #4**

Sear overlap ?
Striker overlap ?
Slide cap height 18.56 mm
Rail thickness 1.81 mm
Slide rail gap 2.43 mm
Slide downward movement .62 of a mm
Lateral movement of striker foot .80 of a mm
Striker safety lock foot thickness ?
Striker safety notch .?
Lack of overlap (sear/striker foot) ?
Safety lock thickness .74 of a mm

51) I would recommend that the subject P-320 be subjected to either x-ray or CT scanning to determine any interior dimensions and possible unintended contact between parts such as the sear springs against the sear housing, lack of striker overlap in relation to the sear overlap, trigger bar spring touching the backstrap of the magazine when trigger is pressed. Also, a CT scan difference between the slide at “rest” and the slide compressed downward towards the grip module to see the “air gap” between the safety lever and safety lock removed.

52) After examining all three exemplar firearms I fired 100 rounds each of GECO 9mm 124 grain full metal jacket rounds through both firearms #1 and #2.

53) Exemplar #3 did not have test rounds put through it as there were no .40 caliber ammunition available on the market at that time.

54) After returning from the range, I disassembled both #1 and #2 again, and reviewed the interior. I observed that there was gunpowder residue on the feed ramp,barrel, breech face, trigger pin on both sides, magazine catch housing and the safety takedown lever.

55) The only concern I had with the deposits of gunpowder locations was the trigger pin area. As noticed previously during the initial inspection, I discovered dried dirty white grease behind the trigger pivot points. After continuous shooting, and the deposit of gunpowder in this area, it could cause the trigger to stick once released which would result in the safety bar remaining up pressing against the safety lock disengaging the safety from the striker.

56) **(MANUFACTURING DEFECT)**The inconsistency of the slide cap heights show that there is a difference of construction during the MIM process. There is no reason to have varying heights of slide caps. This could be a direct result of different subcontractors using different formulas during the manufacturing process of MIM. The slide cap was not addressed in the “Parts upgrade” page 69 of the SIG P320 TECHNICAL ARMORERS MANUAL so all slide caps should be the same size.

57) The safety lock on the non upgraded versions,(#1 and #4) were not encapsulated into the striker housing at its pivot point but the others (#2 and #3) were. During my Armorers class, the Sig Employee/Instructor stated that the reason for the encapsulation of the pivot point was due to the safety lock moving sideways to allow the safety lock return spring to catch behind the lock preventing the safety lock to return to its “safe” position.

58) After reviewing all four Sig Sauer P-320’s, it was obvious that several of the MIM parts were not finished to a tighter tolerance by either the subcontractor or Sig Sauer themselves before installing these parts. The fact that the MIM parts showed “rollover” on the leading edges which prevented full intended contact of the sear and striker overlaps with the addition of minimal movement of the trigger/safety lever/safety lock which would cause the safety to be disengaged, could lead to an unintended discharge.

59) Also, the observation of #4’s sear showing signs of lint, could also contribute to the lack of sear/striker interface.

60) There seemed to be no consistency of dimension between the same parts between all four P-320’s as reflected in the comparison chart.

61) **(MANUFACTURING DEFECT)** Also on page 69 of the SIG P320 TECHNICAL ARMORERS MANUAL, it states that the safety lever return spring has been eliminated from current production. The safety lever uses "GRAVITY" to rest in the lowered position. Although the safety lever return spring is in the #4 subject pistol, the removal of the safety lever return spring could also lead to inadvertently disengaging the safety lock as the safety lever may not always return to its "lowered' position. During my P-320 armorers course, I was issued an upgraded Sig P-320 serial number 58A027023 which did not have a safety lever return spring installed and upon examination of the grip module without the slide attached and with rearward pressure of the trigger, the safety lever remained in the "up" position and needed to be manually pushed down everytime. This is in direct contradiction to the printed statement of the manual.

62) Another issue observed was the information provided in the owner's manual which states: "DO NOT LUBRICATE OR ALLOW LUBRICANT TO FLOW INTO THE STRIKER CHANNEL OF THE SLIDE. THIS MAY CAUSE A LIGHT STRIKE TO THE CARTRIDGE RESULTING IN A FAILURE TO FIRE". But when involving lubrication of the grip module the owner's manual states: " APPLY CLP/LSA TO ACCESSIBLE FUNCTIONING PARTS"!

63) This instruction is in direct contradiction to the first direction due to once the grip module is lubricated then the P-320 is then holstered, the sidearm is then in a slightly angular vertical position which will allow oil to "gravitate" forward towards the striker assembly!

64) Having a striker fired sidearm designed with a "fully energized" (cocked) position striker while holstered with the addition of varying sized improperly fit or unfinished parts, could lead to an unintended discharge.

65) After reviewing the sear and striker foot overlaps, it was apparent that there was no attempt to machine these surfaces by either the subcontractor or Sig once they received the parts to insure full contact between them.

66) After cataloging and examining in detail all photographs taken of the P-320's in this examination, I found the following further issues involving design defects.

67) **(DESIGN DEFECT)** with #2, I noticed that the rear portion of the sear showed signs of dragging along the back inner portion of the sear housing as there were black scrape marks on the rear inner portion of the sear as it appeared to be riding along the raised center edges of the housing. This could cause significant interference with the operation

of the sear as its up and down motion can be interrupted allowing the sear to be stuck lower than needed to properly catch the striker foot overlap which could lead the striker foot to “walk off” easier. With the sear being stuck in a slightly lower position, and a “walk off” occurred, the secondary sear notch would be ineffective as its position would also be lower than needed.

68) **(DESIGN DEFECT)** with #2 again, I noticed in the closeup photographs of the right side of the trigger area that there were drag marks in the FCU housing caused by improper alignment of the trigger bar as the inner portion of the trigger bar was pressing against the housing. This problem could very easily cause the trigger itself along with dried grease/oil or carbon buildup from weapon discharge to remain rearward after releasing the trigger after firing the P-320 enough to disengage the safety lock due to its short travel needed (1.38mm).

69) **(DESIGN DEFECT)** After disassembling the FCU of #2, I also noticed that the top portion of the trigger was also dragging on the inner portion of the takedown safety lever as there was a worn drag mark along the top portion of the trigger and inner portion of the takedown safety lever. More detailed photographs were then taken specifically of these issues and added to the file.

70) INSPECTION OF SCHNEIDER P-320 EVIDENCE PICTURES SHOWING DESIGN DEFECT.

71) Inspection of photographs of the Schneider Sig Sauer P-320 provided to me by Mr. Schneider’s attorney, in a report which was prepared for him by expert Bill Munsell, I was able to notice out of 8 photos provided that in photo number 6, which depicted the bottom right side view of the striker assembly, it appeared that there was discharge debris covering the striker assembly, primarily the safety lock, as it was pictured in the “safe” position. Further examining this photograph, it was obvious that the inner right side portion of the safety lock was dragging against the striker housing as the surface of the safety lock along the drag mark portion was clean, but the rest of the safety lock was dirty from discharge debris as you can clearly see the outline of the striker housing on the upper portion of the lock. This dragging can cause the safety lock to remain in the “fire” position allowing an uncommanded discharge.

72) In regards to all of the above referenced design or manufacturing defects, the various sizes of internal parts and having a wide range of motion between these parts, I concur with Sig Sauers own assessment which states that **“like any mechanical device,exposure to acute conditions (e.g. shock,vibration,heavy or repeated**

drops) may have a negative effect on these safety mechanisms and cause them to not work as designed."

Comparison Chart

Comparison Chart	#1	#2	#3	#4
SEAR OVERLAP	2.18	1.13	1.06	
STRIKER OVERLAP	1.44	1.30	1.41	
SLIDE CAP HEIGHT	18.28	18.32	18.93	18.56
RAIL THICKNESS	1.96	2.13	2.25	1.81
SLIDE RAIL GAP	2.35	2.37	2.10	2.43
DOWNWARD MOVEMENT OF SLIDE	.39	.24	.15	.62
LATERAL MOVEMENT OF STRIKER FOOT	.85	.53	.61	.80
STRIKER SAFETY LOCK FOOT THICKNESS	.84	.84	.83	
STRIKER SAFETY NOTCH	.81	.85	.86	
LACK OF OVERLAP (SEAR/STRIKER)	.74	.17	.35	
SAFETY LOCK THICKNESS	.84	.83	.83	.74

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